PENDING CLAIMS AFTER ENTRY OF AMENDMENTS

2. The method of claim 33, wherein said tissue specific is conjugated to said ethylenedicysteine on both acid arms of the ethylenedicysteine.

3. The method of claim 33, wherein said radionuclide is ^{99m}Tc, ^{188}Re, ^{186}Re, ^{183}Sm, ^{166}Ho, ^{90}Y, ^{89}Sr, ^{67}Ga, ^{68}Ga, ^{111}In, ^{183}Gd, ^{59}Fe, ^{225}Ac, ^{212}Bi, ^{211}At, ^{64}Cu or ^{62}Cu.

4. The method of claim 3, wherein said radionuclide is ^{99m}Tc.

6. (Twice Amended) The method of claim 33, wherein said tissue specific ligand is an anticancer agent.

7. The method of claim 6, wherein said anticancer agent may be selected from the group consisting of methotrexate, doxorubicin, tamoxifen, paclitaxel, topotecan, LHRH, mitomycin C, etoposide tomudex, podophyllotoxin, mitoxantrone, camptothecin, colchicine, endostatin, fludarabin, gemcitabine and tomudex.

8. (Twice Amended) The method of claim 33, wherein said tissue specific ligand is a tumor marker.

9. The method of claim 8, wherein said tumor marker is PSA, ER, PR, CA-125, CA-199, CEA AFP, interferons, BRCA1, HER-2/neu, cytoxan, p53, endostatin, a monoclonal antibody or an antisense.

10. (Twice Amended) The method of claim 33, wherein the tissue specific ligand is a folate receptor targeting ligand.

11. The method of claim 10, wherein the folate receptor targeting ligand is folate, methotrexate or tomudex.

12. The method of claim 11, wherein the ligand derivative is ^{99m}Tc-EC-folate.

13. The method of claim 11, wherein the ligand derivative is ^{99m}Tc-EC-methotrexate.

14. The method of claim 11, wherein the ligand derivative is ^{99m}Tc-EC-tomudex.

15. (Twice Amended) The method of claim 33, wherein the tissue specific ligand is a tumor apoptotic cell targeting ligand or a tumor hypoxia targeting ligand.

16. The method of claim 15, wherein the tissue specific ligand is annexin V, colchicine, nitroimidazole, mitomycin or metronidazole.

17. The method of claim 16, wherein the ligand derivative is ^{99m}Tc-EC-annexin V.

18. The method of claim 16, wherein the ligand derivative is ^{99m}Tc-EC-colchicine.

19. The method of claim 16, wherein the ligand derivative is ^{99m}Tc-EC-nitroimidazole.

20. The method of claim 16, wherein the ligand derivative is ^{99m}TC-EC-metronidas.

21. (Twice Amended) The method of claim 33, wherein the tissue specific ligand is glutamate pentapeptide.

22. The method of claim 21, wherein the ligand derivative is 99mTc-EC-glutamate pentapeptide.

23. (Twice Amended) The method of claim 33, wherein the tissue specific ligand is an agent that mimics glucose.

24. The method of claim 23, wherein the agent that mimics glucose is neomycin, kanamycin, getnamycin, paromycin, amikacin, tobramycin, netilmicin, ribostamycin, sisomicin, micromicin, lividomycin, dibekacin, isepamicin, astromicin, or an aminoglycoside.

25. The method of claim 24, wherein the ligand derivative is 99mTc-EC-neomycin.

26. The method of claim 24, wherein the ligand derivative is 99mTc-EC-kanamycin.

27. The method of claim 24, wherein the ligand derivative is 99mTc-EC-aminoglycosides.

28. The method of claim 24, wherein the ligand derivative is 99mTc-EC-gentamycin.

29. The method of claim 24, wherein the ligand derivative is 99mTc-EC-tobramycin.

30. The method of claim 2, further comprising a linker conjugating EC to said tissue specific ligand.

31. The method of claim 30, wherein the linker is a water soluble peptide, glutamic acid, aspartic acid, bromo ethylacetate, ethylene diamine or lysine.

32. The method of claim 31, wherein the tissue specific ligand is estradiol, topotecan, paclitaxel, raloxifen, etoposide, doxorubricin, mitomycin C, endostatin, annexin V, LHRH, octreotide, VIP, methotrexate or folic acid.

33. (Once Amended) A method of synthesizing a radiolabeled ethylenedicysteine derivative for imaging comprising the steps:

a) obtaining a tissue specific ligand, wherein the tissue specific ligand is an anticancer agent, a tumor marker, a folate receptor targeting ligand, a tumor apoptotic cell targeting ligand, a tumor hypoxia targeting ligand, glutamate pentapeptide, or an agent that mimics glucose;

b) admixing said ligand with ethylenedicysteine (EC) to obtain an EC-tissue specific ligand derivative; and

c) admixing said EC-tissue specific ligand derivative with a radionuclide and a reducing agent to obtain a radionuclide labeled EC-tissue specific ligand derivative, wherein the EC forms an N_2S_2 chelate with the radionuclide.

34. The method of claim 33, wherein said reducing agent is a dithionite ion, a stannous ion or a ferrous ion.

35. (Once Amended) A method for labeling a tissue specific ligand for imaging, comprising the steps:

a) obtaining a tissue specific ligand, wherein the tissue specific ligand is an anticancer agent, a tumor marker, a folate receptor targeting ligand, a tumor apoptotic cell targeting ligand, a tumor hypoxia targeting ligand, glutamate pentapeptide, or an agent that mimics glucose;

b) admixing the tissue specific ligand with ethylenedicysteine (EC) to obtain an EC-ligand drug conjugate; and

c) reacting the drug conjugate with ^{99m}Tc in the presence of a reducing agent to form an N_2S_2 chelate between the ethylenedicysteine (with or without linker) and the ^{99m}Tc.

37. (Once Amended) The method of claim 35, wherein the reducing agent is a dithionite ion, a stannous ion or a ferrous ion.

38. (Once Amended) A method of imaging a site within a mammalian body comprising the steps of administering an effective diagnostic amount of a composition comprising a 99mTc labeled ethylenedicysteine-tissue specific ligand conjugate and detecting a radioactive signal from the ^{99m}Tc localized at the site, wherein the tissue specific ligand is an anticancer agent, a tumor marker, a folate receptor targeting ligand, a tumor apoptotic cell targeting ligand, a tumor hypoxia targeting ligand, glutamate pentapeptide, or an agent that mimics glucose.

39. The method of claim 38, wherein the site is a tumor.

40. The method of claim 38, wherein the site is an infection.

41. The method of claim 38, wherein the site is breast cancer, ovarian cancer, prostate cancer, endometrium, heart, lung, brain, liver, folate (+) cancer, ER (+) cancer, spleen, pancreas, or intestine.

52. The method of claim 23, wherein the ligand is glucose or glucosamine.

53. The method of claim 23, wherein the ligand is deoxyglucose.

54. The method of claim 33, wherein the ligand is deoxyglucose.

55. The method of claim 35, wherein the ligand is deoxyglucose.